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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,090	02/14/2002	Susana Salceda	DEX-0312	5706

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EXAMINER	
BORIN, MICHAEL L	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/078,090	SALCEDA ET AL.	
	Examiner	Art Unit	
	Michael Borin	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *6 and 10-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1-17 are pending.

2. Response to restriction requirement filed 02/27/2003 is acknowledged. Applicant elected, with traverse, Group I, claims 1-5, 7-9 as drawn to polynucleotide SEQ ID No. 48 encoding polypeptide SEQ ID No. 151. Applicant argues that search of a polypeptide together with polynucleotide encoding the peptide would not be burdensome. First, polypeptides and polynucleotide are separately classified which would require separate searches of patent literature. Second, polypeptides have been most commonly, albeit not always, separately characterized and published in the Biochemical literature, thus significantly adding to the search burden if examiner together, as compared to being searched separately. In regard to election of a particular sequence, examiner clarifies that it is not requirement for election of species but restriction requirement, as the claims are drawn to plurality of sequences that do not have common core structure. Applicant elected polynucleotide SEQ ID No. 48. As for the request to include polynucleotide SEQ ID No. 47, there is no common core structure disclosed for polynucleotides SEQ ID No. 47 and 48.

The restriction requirements still deemed proper and is therefore made FINAL. Claims 6, 10-17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b),

as being drawn to a non-elected groups. Cancellation of claims 6, 10-17, and amendment of claims 1-5,7-9 to read on elected species, polynucleotide SEQ ID No. 48, are requested.

Priority

3. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional applications upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for the elected SEQ ID NOs. No CRF was filed with the provisional applications to which priority is claimed. It is possible that the provisional application recites a sequence which is the same as instant SEQ ID NOs, but in the absence of a CRF for the application, the examiner has no way of determining whether any sequence recited in the provisional application is identical to instant SEQ ID Nos. Given the large number of sequences recited in the provisional application, and given the size of SEQ ID Nos. in the present case and each of the sequences recited in the provisional application, it would require undue effort on the part of the examiner to determine which, if any, of the sequences recited in the provisional application is identical to instant SEQ ID Nos. Prior art published after the parent applications but before the filing date of the instant application may have been cited in this Office action. If they wish to contest the citation of the intervening prior

art, applicants are requested to provide clear evidence that the elected inventions are disclosed in the parent application.

Applicant is requested to point to the specific SEQ ID number(s) in any or each of the provisional applications that correspond to the elected SEQ ID NOs, and to the specific page and line, or to the specific page and Table designation where the corresponding SEQ ID NOs. are taught. In the absence of any indication of such correspondence and/or an alignment showing identity between SEQ ID NOs, priority is not granted to the provisional application, and the instant application is granted priority only to its filing date.

Claim Objections

4. Claims 1-5, 7-9 are objected because they do not reflect the elected subject matter. Applicant elected polynucleotide SEQ ID No. 48 encoding polypeptide SEQ ID No. 151. The claims do not reflect the elected subject matter. Amendment of the claims to read on the polynucleotide of SEQ ID 808 is requested.

Claim Rejections - 35 U.S.C. § 101/ 112-1

The following is a quotation of the 35 U.S.C. § 101:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The pending claims have been reviewed in light of the Utility Examination Guidelines and Guidelines for Examination of Patent Applications under 35 U.S.C. 112, first paragraph, "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1092-1111, January 5, 2001.

The examiner is using the following definitions in evaluating the claims for utility.

"Specific" - A utility that is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention.

"Substantial" - A utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities. The following are examples of situations that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use and, therefore, do not define "substantial utilities":

A. Basic research such as studying the properties of the claimed product itself or the mechanisms in which the material is involved.

B. A method of treating an unspecified disease or condition. (Note, this is in contrast to the general rule that treatments of specific diseases or conditions meet the criteria of 35 U.S.C. § 101.)

C. A Method of assaying for or identifying a material that itself has no "specific and/or substantial utility".

D. A method of making a material that itself has no specific, substantial, and credible utility.

E. A claim to an intermediate product for use in making a final product that has no specific, substantial, and credible utility.

"Credible" - Credibility is assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record that is probative of the applicant's

assertions. That is, the assertion is an inherently unbelievable undertaking or involves implausible scientific principles.
"Well-established" - a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art.

See also the MPEP at §§ 2107 - 2107.02.

5. Claims 1-5, 7-9 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by a specific, substantial, and credible utility or, in the alternative, a well-established utility.

The claims are drawn to polynucleotide SEQ ID No. 48 encoding polypeptide SEQ ID No. 151. There is no demonstrated specific or substantial utility for the polynucleotide SEQ ID No. 48. The only information provided in the specification in regard to polynucleotide SEQ ID No. 48 is that it encodes polypeptide SEQ ID No. 151. There is no information addressing specifically this protein. The specification states that the polynucleotides may be useful as probes for determining presence of breast specific nucleic acids or diagnosing breast cancer. The polynucleotide compounds are not supported by a substantial utility because no substantial utility has been established for the claimed subject matter. For example, a nucleic acid may be utilized to probe another polynucleotide. This or another polynucleotide could be used to produce a protein and the latter could then be used in conducting research to

functionally characterize the protein. The need for such research clearly indicates that the protein and/or its function is not disclosed as to a currently available or substantial utility. A starting material that can only be used to produce and/or identify a final product does not have substantial asserted utility in those instances where the final product is not supported by a specific and substantial utility. In this case none of the polynucleotides which may be fingerprinted by the products of the instant invention have asserted or identified specific and substantial utilities. Note, because the claimed invention is not supported by a specific and substantial asserted utility for the reasons set forth above, credibility has not been assessed. Neither the specification as filed nor any art of record discloses or suggests any property or activity for the nucleic acid compounds such that another non-asserted utility would be well established for the compounds.

The examiner does not find an adequate nexus between the evidence of record and the asserted properties of the claimed subject matter. Applicant should explicitly identify a specific, substantial, and credible utility for the claimed invention and establish a probative relation between any evidence of record and the originally disclosed properties of the claimed invention.

6. Claims 1-5, 7-9 is also rejected under 35 U.S.C. § 112, first paragraph. Specifically, since the claimed invention is not supported by a substantial or a well-established utility for the reasons set forth above, one skilled in the art would not know how to make and/or use the claimed invention.

7. Claims 1-5, 7-9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The invention is drawn to genomic DNA or cDNA or RNA specific to breast tissue (see p. 6). The exact sequence SEQ ID No. 48 meets the provision of written description. However, the claims encompass gene sequences, encoding sequences and so forth. None of these products meet the written description provision of 35 USC 112, first paragraph as there is no description of other elements included in DNA, such as non-coding, regulatory regions, etc. The specification provides insufficient written description to support the genus encompassed by the claim.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes

of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

With the exception of nucleic acids consisting of sequences of identified SEQ ID Nos, the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides and/or proteins, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmacentical Co. Ltd., 18 USPQ2d 1016.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

> ...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.* , 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli* , 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood* , 107 F.3d at 1572, 41 USPQ2d at 1966.

> An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. *Fiers v. Revel* , 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id. at 1170, 25 USPQ2d at 1606.

Therefore, only nucleic acids consisting sequences of identified SEQ ID No 48, but not the full breadth of the claims meet the written description provision of 35 USC 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant.

8. Claims 1-5,7-9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The claims are drawn, in part, to polynucleotides having at least 60% sequence identity with SEQ ID NO: 48. The specification discloses SEQ ID NO:48 as specific to colon cancer or cancer tissues. Polynucleotide SEQ ID No. 48 itself meets the written description and enablement provisions of 35 USC 112, first paragraph. However, the claims drawn to nucleotide sequences having more than 60% identity to the elected SEQ ID 60, do not have sufficient description in the specification as description of

species is insufficient to support a highly variable genus. Applicant is advised that absent factual evidence, a percentage sequence similarity of less then 60% over the entire length is not deemed to reasonably support to one skilled in the art whether the biochemical activity of newly discovered sequence would be the same as that of similar known biomolecule. The effects of changes in the structure are largely unpredictable as to which ones have a significant effect versus not. Therefore, sequence similarity result in an unpredictable and therefore unreliable correspondence between the newly discovered sequence and a similar biomolecule of known function or expression. No sequence information indicating what is the necessary common attribute for the polynucleotides encompassed by the claimed genus to be specific to colon cancer cells is present in the specification. With the exception of SEQ ID NO: 48, the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides, regardless of the complexity or simplicity of the method of isolation. The species specifically disclosed are not representative of the genus because the genus is highly variant. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. Describing a method of preparing a cDNA or even describing the protein that the cDNA encodes, as the example does, does not necessarily describe the cDNA itself. Accordingly, the specification does not provide a written description of the

invention of claim 1, and, consequently, of its expression cell and vector of claims 7-9, as well as polynucleotides hybridizable to such polynucleotide. Therefore, only SEQ ID NO: 48 but not the full breadth of the claim meets the written description provision of 35 USC 112, first paragraph.

9. Claims 1-5, 7-9 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the nucleotide sequence of SEQ ID NO:48 (which encodes protein SEQ ID No 151) does not reasonably provide enablement for polynucleotides having at least 60% identity polynucleotide encoding protein SEQ ID No. 151.

The breadth of the claims encompasses not only polynucleotides encoding a protein SEQ ID No. 151 but also polynucleotides having at least certain % identity to a polynucleotide encoding protein SEQ ID No.151. As the instant claims encompass in their breadth *any* nucleic acid with at least 60% sequence similarity to SEQ ID NO:48, such polynucleotides will encode proteins other than protein SEQ ID No. 151. The use of such proteins (as well as polynucleotides encoding them) is not predictable. Skolnick et al. (Trends in Biotech. 2000; 18(1):34-39) teach that the skilled artisan is well aware that assigning functional activities for any particular protein or protein family based upon sequence homology is inaccurate, in part because of the

multifunctional nature of proteins (e.g., "Abstract" and "Sequence-based approaches to function prediction", page 34). Even in situations where there is some confidence of a similar overall structure between two proteins, only experimental research can confirm the artisan's best guess as to the function of the structurally related protein (see in particular "Abstract" and Box 2). Finally, it is well known that even a single amino acid differences can result in drastically altered functions between two proteins. Thus it is unpredictable if any functional activity will be shared by two polypeptides having less than 100% identity over the full length of their sequences. In view of the above, it is the Examiners position that with the insufficient guidance and working examples and in view of unpredictability and the state of art one skilled in the art could not use the invention with the claimed breadth without an undue amount of experimentation.

Further, as the specification does not teach core structure necessary for the above utilities, an artisan would not know how to make polynucleotides as claimed. A person of skill in the art would not be able to determine without undue experimentation which of the plethora of nucleic acid sequences encompassed by the instant claims would share the ability of polynucleotide SEQ ID No. 48 of being overexpressed or being able to encode protein having same function as protein SEQ ID No. 151.

Claim Rejections - 35 USC § 102

10. Claims 1-5 are rejected under 35 U.S.C. 102(a) as being anticipated by the sequence of Accession number BF953475 (01/2001), Database EST or Accession number AL110228, Database GenEmbl. The referenced sequences show more than 95% similarity to regions of SEQ ID No. 48 of the instant invention (see attached sequence alignment). As the referenced sequences have continuous stretches matching the claimed sequence of SEQ ID No. 48 (see attached sequence alignment) it would be expected to selectively hybridize to SEQ ID No. 48, absent evidence to the contrary.

11. Claims 1-5 are rejected under 35 U.S.C. 102(a) as being anticipated by Accession number AB040959, Database Genemb (Nagase et al., DNA Research, 7, 143-150, 2000); see attached sequence alignment. The referenced sequences have 96% similarity to polynucleotide encoding polypeptide SEQ ID No. 151.

Conclusion.

12. No claims are allowed

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (571) 272-

0713. Dr. Borin can normally be reached between the hours of 8:30 A.M. to 5:00 P.M. EST Monday to Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Woodward, can be reached on (571) 272-0722.

Any inquiry of a general nature or relating the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-0549.

May 11, 2004

MICHAEL BORIN, PH.D
PRIMARY EXAMINER

mlb